



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON D.C., 20460

OFFICE OF  
CHEMICAL SAFETY AND  
POLLUTION PREVENTION

December 11, 2019

PC Code: 060109  
DP Barcode: 436880

**MEMORANDUM**

**SUBJECT:** **Thiamethoxam:** Transmittal of Two Data Evaluation Records for Pollinator Toxicity Studies

**FROM:** Ryan Mroz, Biologist  
Environmental Risk Branch V

  
RYAN MROZ  
2019.12.11  
11:16:55  
-05'00'

Kristina Garber, Senior Science Advisor  
Environmental Risk Branch I  
Environmental Fate and Effects Division (7507P)

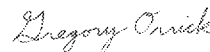
KRISTINA  
GARBER

Digitally signed by  
KRISTINA GARBER  
Date: 2019.12.16  
15:59:41 -05'00'

**THRU:** Sujatha Sankula, Ph.D., Branch Chief  
Gregory Orrick, Risk Assessment Process Leader  
Environmental Risk Branch I  
Environmental Fate and Effects Division (7507P)

Sankula,  
Sujatha

Digitally signed by Sankula,  
Sujatha  
Date: 2019.12.17 14:27:50  
-05'00'



2019.12.16 16:24:15  
-05'00'

**TO:** Matthew Khan Chemical Review Manager  
Marianne Mannix, Acting Team Leader  
Dana Friedman, Branch Chief  
Risk Management and Implementation Branch I  
Pesticide Re-Evaluation Division (7508P)

The Environmental Fate and Effects Division (EFED) has completed the review of two chronic toxicity studies of thiamethoxam to adult and larval honeybees which were submitted to the Agency as part of the Registration Review of thiamethoxam. Acceptable data from a single dose larval acute toxicity study are still outstanding; however, based on the results of these reviews no additional information to obtain endpoints for Tier I laboratory studies are necessary. EFED will use the results from the repeat dose test (considered conservative) to characterize mortality risks to larvae from thiamethoxam, noting mortality effects greater than 50% were not manifested until pupal mortality was measured at day 15. Study details are presented in **Table 1**.

**Table 1. Details for the Thiamethoxam Studies on Honey Bees**

Study Type	MRID	Study Citation	Study Classification	Comments
<p>Tier I - Chronic 21-day larval continuous feeding</p> <p>Thiamethoxam TGAI (98.8%)</p> <p>Non-guideline, OECD 239</p>	50096607	<p>Kling, A (2016). Thiamethoxam-Honey Bee (<i>Apis mellifera</i> L.) Larval Toxicity Test (Repeated Exposure through to Adult Emergence) Project Number: Eurofins Study No. S16-00331. Unpublished study prepared by Eurofins Agrosience Services EcoChem GmbH</p>	Acceptable	<p><b>Dietary Dose (<math>\mu\text{g ai/larva/day}</math>)</b></p> <p><u>Adult Emergence (day 22)</u></p> <p>ED<sub>50</sub>: 0.0301</p> <p>95% CI: 0.0172 – 0.0637</p> <p>Slope: 1.05 (0.535 – 1.56)</p> <p>NOAEL: 0.004</p> <p>LOAEL: 0.008</p> <p><u>Mortality (day 15)</u></p> <p>LD<sub>50</sub>: 0.0453</p> <p>95% CI: 0.0263 – 0.116</p> <p>Slope: 1.06 (0.541 – 1.57)</p> <p>NOAEL: 0.028</p> <p>LOAEL: 0.059</p> <p><u>Mortality (day 8)</u></p> <p>LD<sub>50</sub>: &gt;0.120</p> <p>95% CI: N/A</p> <p>Slope: N/A</p> <p>NOAEL: 0.004</p> <p>LOAEL: 0.008*</p> <p><b>See the DER if dietary concentrations endpoints are necessary.</b></p> <p><b>*See DER for characterization</b></p>
<p>Tier I - Chronic adult 10-day continuous feeding</p> <p>Thiamethoxam TGAI - (99.5%)</p> <p>OECD 245</p>	50084901	<p>Kling, A (2016). Thiamethoxam- Assessment of Effects on the Adult Honey Bee, <i>Apis mellifera</i> L., in a 10-Day Chronic Feeding Test under Laboratory Conditions. Project Number: Eurofins Study No. S16-00325. Unpublished study prepared by Eurofins Agrosience Services EcoChem GmbH.</p>	Acceptable	<p><b>Dietary Dose</b></p> <p><u>Mortality</u></p> <p>LD<sub>50</sub>: 3.67 ng ai/bee/day</p> <p>95% C.I.: 2.39 – 5.99 <math>\mu\text{g ai/bee/day}</math></p> <p>Slope: 5.59</p> <p>95% C.I.: 1.77 – 9.42</p> <p>NOAEL: 2.51 ng ai/bee/day</p> <p>LOAEL: 4.87 ng ai/bee/day</p> <p><u>Food Consumption</u></p> <p>ID<sub>50</sub>: 4.90 ng ai/bee/day</p> <p>95% C.I.: 3.31 – 7.28 <math>\mu\text{g ai/bee/day}</math></p> <p>Slope: N/A</p> <p>NOAEL: 1.17 ng ai/bee/day</p> <p>LOAEL: 1.85 ng ai/bee/day</p> <p><b>See the DER if dietary concentrations endpoints are necessary.</b></p>